UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
ANIMAL DISEASE ERADICATION DIVISION
FEDERAL CENTER BUILDING
HYATTSVILLE, MARYLAND 20781

ANNUAL REPORT
of
COOPERATIVE STATE-FEDERAL PSOROPTIC SHEEP AND CATTLE SCABIES ERADICATION ACTIVITIES
Fiscal Year 1963

AUGUST 15, 1963

UNITED STATES DEPARTMENT OF AGRICULTURE
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PSOROPTIC SHEEP SCABIES

Psoroptic sheep scabies was reported in 268 flocks of 20,160 sheep in 180 counties in 21 States compared to 767 flocks in 316 counties in 24 States in 1962. 51 infected lots were found at public stockyards during fiscal year 1963 and 121 during the previous year. 15,530,561 sheep were inspected on farms during 1963 and 843,447 dipped--a considerable increase over 1962 when 12,771,677 were inspected on farms and 591,231 dipped.

PROGRAM ACTIVITIES FISCAL YEARS 1954 THROUGH 1963

Fiscal Year	Number of Infected States	Number of Infected Counties	Number of Infected Flocks	Total Inspections	Total Dippings	Public Stockyards		
						Infected Lots	Sheep Inspected	Sheep Dipped
1954	21	183	391	5,477,334	390,530	68	13,179,281	241,689
1955	24	219	442	5,587,267	391,952	72	13,447,297	242,627
1956	25	267	607	8,730,299	441,713	110	12,835,044	235,488
1957	24	289	682	11,994,987	573,810	150	12,791,764	299,474
1958	24	300	726	9,500,782	356,854	206	11,626,207	341,924
1959	24	276	736	10,848,946	309,609	209	11,908,863	388,450
1960	25	280	886	10,836,576	390,958	214	12,351,029	374,834
1961	24	296	872	12,031,249	506,745	187	12,304,306	350,339
1962	24	316	767	12,771,677	591,231	121	11,722,578	303,196
1963	21	180	268	15,530,561	843,447	51	9,769,549	299,291

OUTBREAKS IN SHEEP SCABIES FREE AREAS

During fiscal year 1963, sheep scabies outbreaks occurred in several Scabies Free Areas involving Delaware, Colorado, Kansas, Nebraska, North Carolina, Wisconsin, and Mississippi.

The Delaware outbreak, involving one New Castle County flock in August 1962, was traced back through a Maryland auction market to purchases from an infected flock maintained on two premises in Martin and Tyrrell Counties, North Carolina. The source of infection in North Carolina could not be determined. The infected Delaware flock was found when a Division veterinarian drove by the farm, saw the sheep and suspected scabies.

The Colorado outbreak involving a small flock in Phillips County was found in January 1963 by a veterinary practitioner. Both psoroptic and chorioptic mites were identified. Colorado officials were unable to definitely determine the source of this outbreak.

In Kansas, sheep scabies was found in one flock in September 1962 in Smith County as a result of epidemiological tracing from infected sheep found at Omaha Union Stockyards, Omaha, Nebraska. In March 1963, one infected flock was found in Lincoln County as a result of back-tracing from an auction market at Beloit, Kansas, where the disease was found prior to unloading the infected animals. It is believed that the disease was introduced into both flocks by inadequately dipped sheep sold through an auction market at Kearney, Nebraska. The actual source of the earlier outbreak appeared to have been an infected flock in Red Willow County, Nebraska.

In April 1963, an infected flock was found in Sioux County in the Scabies Free Area of Nebraska. It is believed that improper dipping practices at the Kearney market may have also been responsible for this outbreak.

Wisconsin was declared a Sheep Scabies Free Area in October 1962 following a well-publicized, successful eradication effort incorporating procedures vastly accelerated from those ordinarily followed. In February 1963, sheep scabies diagnosed in feeder lambs at St. Paul Union Stock Yards, South St. Paul, Minnesota, was traced back to infected sheep in a feedlot in Jackson County, Wisconsin. The source of infection was determined to be an infected flock in Portage County. The Portage County flock became infected through the purchase and introduction of a small flock in southern Wisconsin that had been missed during the all-out inspection efforts. It was determined that this source flock had been brought into Wisconsin from Illinois in violation of existing regulations just prior to the inspection program.

In Mississippi in January 1963, one infected flock was found in Choctaw County and another in Winston County. The following month, outbreaks were found in one flock each in Washington and Bolivar Counties resulting in the addition of the latter two counties in March 1963 to the Infected and Eradication Areas in 9 CFR, Part 74. An intensive inspection program was followed in all four counties and no further infection could be found. Both counties were restored to the Free Areas on July 3, 1963.

THIRTEEN ENTIRE STATES AND TERRITORIES AND PARTS OF FIVE OTHER STATES SUCCEED IN ERADICATING SHEEP SCABIES

Remarkable progress has been made toward the goal of sheep scabies eradication since the accelerated program began in August 1960. At that time, 1,421 counties in 27 States and territories were considered Sheep Scabies Free; an active eradication program was underway in 44 counties in one State; and 1,689 infected counties in 22 States and territories were not qualified as Sheep Scabies Eradication Areas.

By July 1963, the number of Scabies Free counties had increased to 2,321 in 42 States and territories--a net increase of 900 counties, more than 64 percent; 518 counties in 8 States were classed as Sheep Scabies Eradication Areas; and the number of infected counties in which an eradication program had not been established had been reduced from 1,689 to 315 in 5 States--a reduction of more than 80 percent. Included in these totals are amendments effective in July 1963 adding Washington and Bolivar Counties, Mississippi, and St. Croix, U. S. Virgin Islands, to the Sheep Scabies Free Areas.

The following States and territories, declared infected or partially infected in August 1960, are now Sheep Scabies Free: Arkansas, Kansas, Maryland, Michigan, Minnesota, New Jersey, New York, North Dakota, Oklahoma, Pennsylvania, South Dakota, Wisconsin, and the Virgin Islands. Parts of Hawaii, Illinois, Nebraska, and Missouri have also been freed of the disease.

NEW CONCEPT OF RAPID SHEEP SCABIES ERADICATION ADOPTED BY MORE STATES

For many years, regulatory officials have talked of the advantage and the feasibility of all-out disease eradication programs designed to move rapidly within a State and to accomplish their objectives quickly and economically in a matter of weeks rather than being expensively drawn out over a period of years. It is appreciated that this approach to disease eradication still costs money and, as always, includes considerable hard work; however, where applicable, it should be an efficient approach to eradication. Wisconsin's successful effort utilizing these principles was credited in last year's report.

During fiscal year 1963, this rapid approach to eradication was employed in Maryland, Minnesota, and Oklahoma leading to their recognition during the fiscal year as Sheep Scabies Free Areas. The concept was also used in Virginia.

There are several prerequisites to the rapid approach of eradication including reasonably low incidence of the disease; a large, well-organized disease eradication staff; considerable planning and publicity; and cooperative support and coordination by the industry and all agencies involved.

ONE SHEEP SCABIES OUTBREAK IN NEW MEXICO ERADICATION AREA

Psoroptic sheep scabies was found in one flock in Chaves County, New Mexico, in September 1962 following the owner's request for assistance.

Epidemiological work revealed that a dealer had purchased four of a shipment of 416 sheep that had been permitted to move to a sale "for immediate slaughter only" after the sheep had been inspected and found free of apparent symptoms of scabies and after it had been believed that they had not been mixed with separate "infected" and "exposed" flocks owned by the same man but kept on different premises.

This outbreak, occurring more than a year ago, is the most recent to be found in New Mexico and speaks well for their considerable eradication efforts in recent years.

FIELD EVALUATION OF ACARICIDES FOR SAFETY AND EFFECTIVENESS

During the year, considerable attention was given to pesticides used in treatment of animals for external parasites. Better vat and dipping management was stressed, more laboratory support was developed, and additional work was done in regard to chemicals which do not create tissue residue problems.

Vat Management in the Absence of a Vatside Test

Maintaining the required concentration of acaricides in the absence of a vatside test requires careful technique and attention by the persons supervising the treatment of animals. Excessive concentration may poison or kill treated animals and may add tissue residue problems. Weak concentrations may not destroy all parasites and permit the spread of disease. The practice of using weak concentrations may also result in more resistant parasite populations.

ADE Division Memorandum No. 505.12, dated June 3, 1963, furnishes detailed information pertaining to vat management. Important aspects of the problem include accurate measurement of dipping vats using a water meter, mechanical agitation of the bath, precise replenishments, submission of bath samples for quantitative analysis, and, of course, considerable attention in regard to the chemical and formulation being used.

Water Meters Purchased for Field Use

In order that field vat supervisors have suitable meters available, 73 magnetic drive disc water meters reading in gallons were purchased for distribution to all States having need for them. These meters will provide considerable assistance in the interests of good vat management and increasing the safety and effectiveness of pesticides.

More Effective Laboratory Support

The Division Chemical Laboratory, Laboratory Services, Beltsville, Maryland, actively supported field activities and quantitative analysis tests were conducted during fiscal year 1963 on samples as follows: Toxaphene - 2,292; Delnav - 29; Co-Ral - 97; Lindane - 355; and Korlan (Ronnel) - 97. Also, 12 series of emulsion stability tests were conducted.

Tissue residue studies for chlorinated hydrocarbons, organic phosphates, and arsenic were made on 5 tissue samples. Sufficient reagents were prepared to make 7,000 field tests for arsenic and lime sulphur. 132 samples of cresylic disinfectants were analyzed for compliance with spefications and the following other studies and miscellaneous sample determinations were conducted: PH - 126; Soda ash - 3; Nitrogen and phosphoric acid in bone meal - 4; Blood moisture - 2; Protein coagulation - 21; Urinary calculi complete analysis - 1; and Wettable powder test - 1. 16,043 test replications were involved in this work.

The increased production was the result of change-over to modern instrumentation and procedures embodying physical and quantum mechanical as well as chemical principles.

Modern equipment added to the laboratory's analytical potential includes such instrumentation as infrared grating, and ultraviolet spectrophotometers, a flourometric photometer, automatic coulometric titrator, and particle size analyzer.

An investigation of the chemical and physical phenomena involved in the rapid depletion of lindane wettable powder in animal dipping is continuing. Possible vatside test procedures for cholorinated hydrocarbons and organo-phosphate pesticides are in various stages of development.

In addition to providing for rapid qualitative checking of unknown samples, and accelerating quantitative analysis work, this equipment also provides for further study into the broad aspects of pesticide problems.

Cooperative Field Dipping Trials

Numerous field trials were conducted, using permitted dips and other products, to develop practical data for program use.

1. Vatside Tests for Emulsion Concentrates Not Satisfactory - Cooperative field trials in Arizona, Florida, Iowa, Missouri, and New Mexico had demonstrated previously that the vatside test available was quite ineffective as a useful tool to maintain the proper concentration of toxaphene emulsions in either cattle or sheep dipping operations. A similar vatside test also proved inadequate for maintaining the required concentration of Delnav emulsions when dipping cattle.

2. Satisfactory Replenishment Ratio Developed for Dipping Cattle in Toxaphene Permitted Dip - Cooperative field trials in Arizona, California, Idaho, New Mexico, and Utah demonstrated that when dipping cattle in permitted dips of toxaphene, an initial charging ratio of 1 gallon and 1 pint of toxaphene for each 150 gallons of water and a replenishment ratio of 1½ gallons of toxaphene for each 150 gallons of added water should maintain the proper acaricide concentration. Instructions to be followed in the treatment of cattle with permitted toxaphene dips are furnished in Supplement No. 2, dated February 7, 1963, of ADE Division Memorandum No. 505.1.

Samples for quantitative analysis were also collected from spray-dip machines in Arizona, Colorado, and Idaho as cattle were being sprayed with toxaphene.

3. Additional Work Done to Establish Replenishment Ratio for Dipping Sheep in Toxaphene Permitted Dip - Supplement No. 3, dated April 10, 1962, to ADE Division Memorandum No. 505.1 furnishes instructions to be followed in the treatment of sheep with permitted toxaphene dips. Considerable effort was made in many States to improve vat management and dipping practices when dipping sheep.

   A great many bath samples taken from portable sheep dipping vats, private vats, and those at auction markets and public stockyards were submitted for quantitative analysis. States in which this work was done include Colorado, Illinois, Indiana, Iowa, Kansas, Kentucky, Minnesota, Missouri Nebraska, North Carolina, North Dakota, Pennsylvania, South Dakota, Texas, Wisconsin, and West Virginia. The results of the quantitative analysis tests indicate that a change in the replenishment ratio is necessary and this is being done.

4. Cooperative Research and Field Trials Conducted in Mexico - Following extensive field trials held in Mexico in April, May, and June 1962, to test the efficacy of various chemicals against Boophilus ticks, additional trials in Mexico were held in November and December 1962. In the earlier work, experimental dipping involved arsenic, Korlan (Ronnel), delnav, and Co-Ral. The latter work was done in cooperation with the Entomology Research and Animal Inspection and Quarantine Division, ARS-USDA and was planned to compare the efficacy of Co-Ral and arsenic against these ticks.

   In these trials arsenic, delnav, and Co-Ral were superior to Korlan when each chemical was used in recommended strengths. There were no deaths of treated cattle due to toxicity of the acaricides. Additional work is planned.

5. Disproportionate Carryout and Pesticidal Properties of Delnav - When using an acaricide for which there is no vatside test available, the disproportionate carryout of chemical and water must be accurately established in order that suitable replenishment procedures can be developed.

   Research work followed by cooperative field trials established that although the vatside test for delnav was unsatisfactory, a cattle dipping bath concentration of near 0.15 percent delnav could be maintained by charging the vat with a ratio of 1 gallon of delnav permitted dip to 200 gallons of water and using a ratio of 1 gallon of delnav for each 150 gallons of added water when replenishing.

   It was also established that delnav was an excellent tickicide. Unfortunately, delnav when used at a concentration of 0.20 percent dip was less effective against screwworm larvae than desired.

   In March and April 1963, a cooperative field trial was conducted in Pennsylvania to obtain additional knowledge concerning the effectiveness of delnav against psoroptic scabies mites and the disproportionate carryout problem when dipping sheep. This work indicated that a concentration of 0.20 percent delnav was maintained when a limited number (26) of infected sheep were dipped in a 150 gallon portable vat. The dipped animals showed no signs of toxicity. The vat was charged at a ratio of 1 gallon of permitted delnav emulsifiable concentrate to 150 gallons of water. The replenishment ratio was 1:100 gallons. Meticulous inspections of the infected sheep during the 30 days following dipping revealed that one dipping in a concentration of 0.20 delnav did not eradicate the psoroptic mites. This was disappointing from a tissue residue standpoint as animals dipped in delnav can be slaughtered for food purposes without a waiting period.

6. Disproportionate Carryout and Pesticidal Properties of Co-Ral - Research and cooperative field trials have established that Co-Ral is an excellent tickicide as well as being highly effective against screwworm larvae. Co-Ral is considered unique among wettable powders in that there seems to be little, if any, disproportionate carryout problem.

   Previously, in limited cooperative field trials in Wyoming and in Colorado in 1962, it appeared that when using a similar charging and replenishing ratio, cattle dipping baths could be maintained at a desired concentration.

   Field trials were conducted in Virginia and Maryland to learn if there is a disproportionate carryout problem when dipping sheep, if sheep can be dipped safely in 0.25 percent Co-Ral under field conditions, and whether Co-Ral is effective against psoroptic scabies mites under field trial conditions.

   On a Virginia farm, 54 sheep were dipped in a 120 gallon portable vat using a bath concentration of 0.25 percent Co-Ral. Quantitative analysis of bath samples indicated that disproportionate carryout of chemical had not occurred. There was no indication of animal toxicity.

   In connection with sheep scabies schools held at Beltsville, Maryland, scabies-infected sheep were dipped as follows:

   One lot of eight infected sheep was dipped in a concentration of 0.125 percent Co-Ral, a lot of 7 was dipped in 0.24 percent, and a concentrate of 0.25 percent was used to dip a lot of 9 sheep. There was no evidence of animal toxicity. The results of meticulous post-dipping inspections were quite encouraging; however, an evaluation of the effectiveness of the dipping cannot be made until both principal and control sheep are again inspected this coming winter.

DIPPING VAT PLANS DEVELOPED

Portable Sheep Dipping Vat Plans

Plans for a portable sheep dipping vat were developed. Many suggestions were received from field stations, agricultural engineers, and custom dippers for incorporation in the plans. From these plans a prototype portable dipping vat is being constructed at Beltsville. The vat will be used to develop information in regard to disproportionate carryout, proper agitation, and other vat management problems. It will also be available when needed in nearby States. Completed plans also will be duplicated for field distribution.

Inspection Facility and Cattle Dipping Vat Plans Distributed

A three-page plan showing details of recommended cattle inspection facilities and a dipping vat was completed jointly by members of the Division and personnel of the Agricultural Engineering Research Division, ARS. The plans were printed and distributed in September 1963 to ADE stations. The prints will also be available in each State through the Cooperative Extension Service. These plans are a composite of a large number of plans reviewed and include the best features of all.

INDIANA DEVELOPS ADDITIONAL SOURCES OF INFORMATION TO LOCATE SCABIES-INFECTED FLOCKS

Indiana has given considerable attention to all means for locating scabies-suspicious or infected flocks. They are endeavoring to develop survey and reporting systems which will serve not only the active phase of their eradication program, but will also provide for prompt reporting should an outbreak occur after the disease has been eradicated from the State.

It is interesting to note that the 35 scabies outbreaks reported in Indiana during fiscal year 1963 were found as follows:

Number Of Infected Flocks	How Found	Number Of Infected Flocks	How Found
6	Reported by sheep shearers.	4	Regulatory personnel visiting ante-mortem pens at packing plants.
6	Found at public stockyards.	3	Reinfection in 3 flocks previously dipped once in lindane.
5	Regulatory personnel on routine inspections.	1	At auction markets.
5	Epidemiological investigation of outbreaks.	1	By USDA, Meat Inspection Division.
4	Found by veterinary practitioners.		

Indiana regulatory officials believe that, as approximately 98 percent of all sheep are shorn by commercial sheep shearers, such individuals can serve as an excellent source for scabies-suspicious flock reports. Sheep scabies training demonstrations have been held at sheep shearers' meetings and regulatory officials have obtained excellent cooperation from the shearers. Efforts to enlist the cooperation of veterinary practitioners have also been fruitful.

PSORERGATES SPP. (PSOROBIA OVIS) OUTBREAKS REPORTED IN SHEEP AND IN CATTLE

In January 1963 regulatory personnel at a ranch in Quay County, New Mexico, made skin scrapings from three cattle showing "rubbed" denuded areas generally confined to the foreparts.

No mites could be demonstrated at the ranch but at the cooperative laboratory in Albuquerque the scrapings were subjected to the sodium hydroxide maceration technique and an extremely small mite isolated from one scraping.

The mounted specimen was submitted to the ADE Division Parasite Reference Center, Beltsville, Maryland, for identification. Taxonomists there suspected that the specimen was Psorergates spp. This was later confirmed.

Psorergates mites have been a problem for a considerable period to sheep raisers in Argentina, Australia, New Zealand, and South Africa. The mites had been isolated from sheep in this country on two occasions--in Ohio in 1951 and in California in 1962. However, to our knowledge, Psorergates spp. mites have never been collected from cattle. The cow from which mites were isolated was born on the ranch in 1959 and reportedly had never been in contact with sheep. The need for a full laboratory investigation of this condition by qualified research workers was recognized and the affected cow was moved to the Animal Disease and Parasite Research Division Laboratory at Albuquerque for further study.

The infected herd was placed under State quarantine and dipped twice at a 21-day interval in heated lime and sulphur solution.

The Quay County herd had been found to be infected with psoroptic scabies in January 1962, spray-dipped twice in accordance with established program procedures, and the disease eradicated. Periodic inspections of the herd had been conducted since that time.

In March 1963, an outbreak of Psorergates ovis (Psorobia ovis) was found affecting a flock of 800 breeding ewes at Roswell, New Mexico. The ewe from which mites were collected was one of three sheep in the flock showing signs of wool loss. She exhibited evidence of wool having been pulled and chewed. However, the skin appeared normal at the sites of irritation. The parasites would have been missed had the skin scrapings not been taken to the cooperative laboratory in Albuquerque where the maceration technique was employed. The identification of the mite was confirmed at Beltsville.

The infected ewe was taken to the Animal Disease and Parasite Research Division Laboratory at Albuquerque for further observation and study. Psorergates mites continue to be found in skin scrapings from this ewe although she no longer shows the same evidence of wool loss.

Recommended treatment of the flock was two dippings in heated lime and sulphur solution at a 21-day interval.

OTHER RELATED ACTIVITIES DURING THE YEAR

Use of Maceration Procedure Essential to Scabies Eradication

It is becoming more and more apparent that as the incidence of scabies is reduced, diagnostic techniques must be developed and improved to the fullest extent. During fiscal year 1963 a negative diagnosis would have been made on a number of scabies-infected animals had not the maceration technique been used. Most States have now developed and are using this procedure routinely. It is described fully in ADE Division Memorandum No. 505.7 dated April 9, 1963.

In order to properly equip laboratories so that this essential diagnostic tool can be used, 25 microscopes and 23 centrifuges were purchased and distributed to field stations during the fiscal year.

Increased Activities at ADE Division Parasite Reference Center

Procedures for submitting parasitic mites for identification are given in ADE Division Memorandum No. 510.5, dated April 22, 1963.

During fiscal year 1963, 94 mite specimens were received and identified. Also at the center 2,383 tick specimens and 71 miscellaneous parasite specimens were identified. Of approximately 31,459 lots of suspected screwworm larvae, some 27,314 were identified as screwworms and 4,145 as various species of blow fly larvae.

Lindane Removed from List of Permitted Dips

Lindane has been used widely and proven to be a useful acaricide. Some problems in regard to animal toxicity and the 60-day delay in slaughter due to tissue residues somewhat restricted the use of the product. The latter problem was relieved to some extent when the Food and Drug Administration in April 1960 granted a lindane tolerance of 7 p.p.m. in the fat of meat of cattle, goats, sheep, and horses, and 4 p.p.m. in the fat of meat of hogs.

The strength of lindane-charged baths had to be maintained by adding carefully measured amounts of water and lindane as the operator had no vatside test procedure to determine the strength of the bath.

There were some reports of apparent failure of lindane dips as certain infected flocks apparently were not freed of the disease and sheep dipped and moved to Scabies-Free Areas were found to be infected.

Detailed supervised field trials were conducted to learn if lindane dipping baths could be maintained at the required concentration. Quantitative analysis tests were conducted at the ADE laboratory, Beltsville, Maryland, on 351 samples from Maryland, Pennsylvania, North Dakota, Oklahoma, Minnesota, New Mexico, Nebraska, South Dakota, and Tennessee.

Evaluation of the results of the field trials demonstrated the impossibility of maintaining satisfactory strengths of lindane wettable powder and on January 10, 1963, the Department removed lindane wettable powder from the list of permitted dips for sheep and cattle scabies.

Supervised Treatment of Animals with Pesticides

ADE Division Memorandum No. 505.11, dated September 21, 1962, instructed Division employees not to supervise the treatment of animals in other than permitted dips. Employees were also instructed to issue certificates for animals properly treated with a permitted dip and to endorse the certificate as specified in ADE Division Memorandum No. 505.1 and supplements thereto.

Scabies Training Courses

During the year, scabies training courses held in cooperation with the States concerned were held in Minnesota; at Beltsville, Maryland; Missouri; Virginia; Oklahoma; Indiana; and Illinois. During the 58 training sessions involved, 2,032 persons received instruction in the fundamentals of diagnosing the disease, dipping animals, vat management, and in the principles of scabies eradication.

Additional Inspections Reported By Personnel Doing Other Work

Increased scabies inspections were made by regulatory personnel who also inspected animals for scabies during the course of other duties and reported this work. This increased efficiency of regulatory field inspectors' time was instrumental in increasing the totals of sheep inspected to 15½ million and cattle inspected to 13½ million--far more than had been inspected previously. Division employees with public stockyard assignments also contributed materially to the increase in inspections by inspecting animals, particularly those in feedlots located in the general vicinity of the public stockyards. Several outbreaks of sheep scabies were found as a result of these inspections.

Amended Interstate Regulations Aid Sheep Scabies Eradication

Effective May 11, 1963, 9 CFR Part 74 was amended to provide the additional requirement that sheep not known to be infected or exposed be dipped prior to moving interstate between infected areas.

Alleged Interstate Violations and Results of Prosecutions Relating to 9 CFR, Part 74, Scabies in Sheep, Based on Reports Received in Washington D. C. Interstate Regulation Enforcement Staff Office

Alleged violations investigated and disposed of:

Cases closed when further investigation disclosed no violation had occurred	2
Cases successfully prosecuted	3
Cases declined for prosecution by U. S. Attorneys	2
Cases closed by letters of warning with the concurrence of Justice Department	4
Cases pending with U. S. Attorneys or the Justice Department	7
Cases presently under investigation	33

Sheep Scabies Program Slide Series Developed

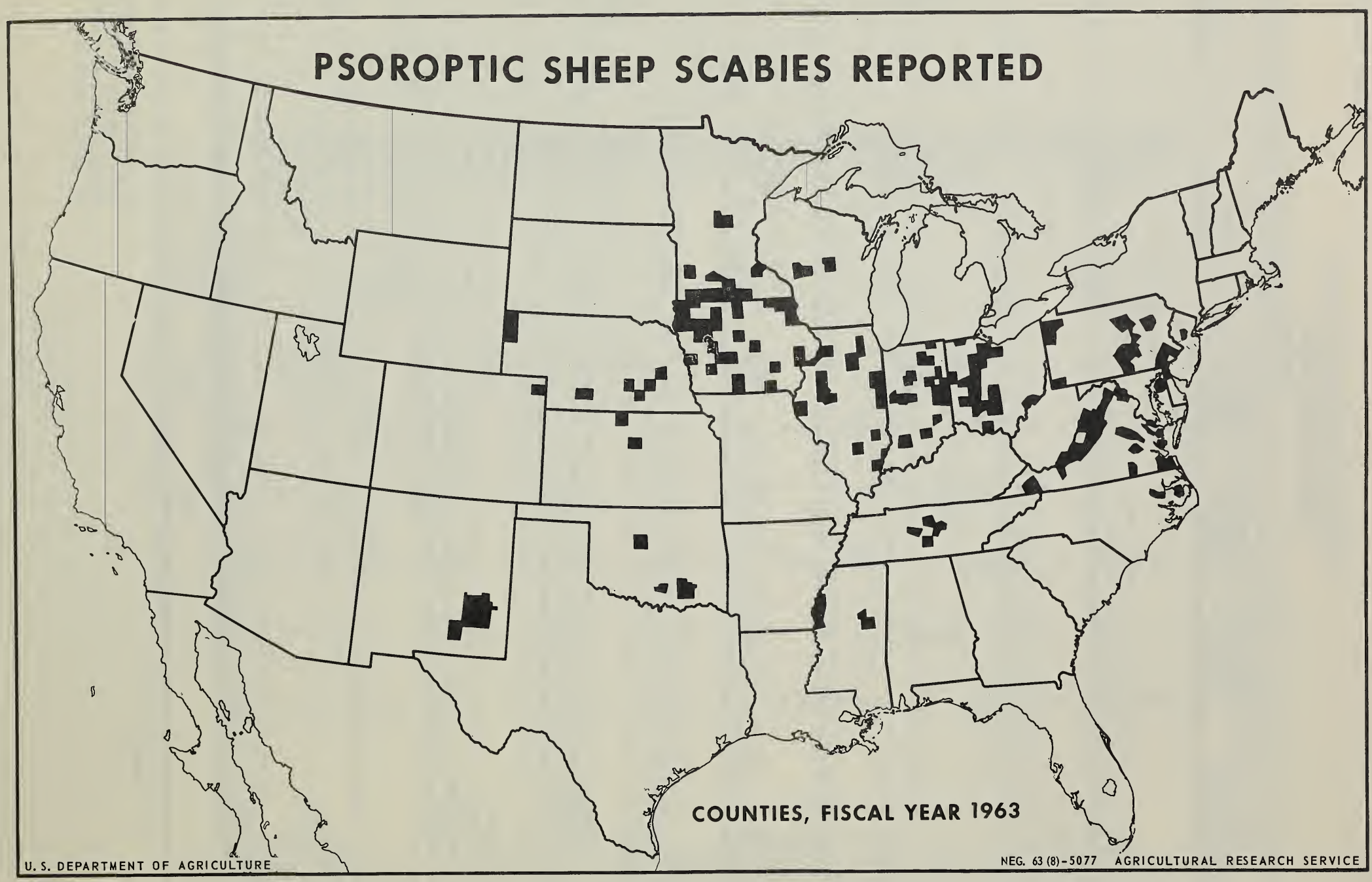
A short series containing ten 35 mm. color slides was developed as a program aid for use during the educational phase preceding an all-out sheep scabies eradication effort. The slides are accompanied by an appropriate narration. One hundred sets of the series are available for loan from the Hyattsville office.

PSOROPTIC SHEEP SCABIES

As Reported From Respective States	Number of Infected Counties	Number of Infected Flocks	Number of Infected Sheep	Total Inspections		Total Dippings
Alabama	0	0	0	2,609		0
Alaska	0	0	0	17,000		0
Arizona	0	0	0	*1,542	376,431	0
Arkansas	0	0	0	68,105		2,447
California	0	0	0	*468	1,076,067	44
Colorado	1	1	47	552,527		43,209
Connecticut	0	0	0	938		0
Delaware	1	1	20	2,860		0
Florida	0	0	0	7,461		0
Georgia	0	0	0	261		0
Hawaii	0	0	0	6,449		5,817
Idaho	0	0	0	1,649,950		0
Illinois	15	23	995	109,809		132,071
Indiana	20	35	3,217	106,671		18,590
Iowa	30	41	2,524	15,984	*1	2,137
Kansas	2	2	478	*45	238,208	1,952
Kentucky	0	0	0	258,570		330
Louisiana	0	0	0	115,306		30,988
Maine	0	0	0	0		0
Maryland	2	2	58	74,654		1,010
Massachusetts	0	0	0	3,811		0
Michigan	0	0	0	339,082		8,433
Minnesota	10	14	1,472	991,044		3,408
Mississippi	4	4	156	44,201		370
Missouri	11	17	1,041	*44,987	515,368	*150 1,489
Montana	0	0	0	10,368[a]		0
Nebraska	6	7	644	63,556		1,516
Nevada	0	0	0	109,049		0
New Hampshire	0	0	0	0		0
New Jersey	1	2	29	39,049		314
New Mexico	1	1	87	1,736,637		476,723
New York	0	0	0	150,093		0
North Carolina	2	3	385	*398	20,164	*218 1,311
North Dakota	0	0	0	203,572		0
Ohio	21	37	4,377	19,912		4,592
Oklahoma	4	4	85	230,329	*39	2,167
Oregon	0	0	0	1,403		0
Pennsylvania	13	17	285	456,575		859
Rhode Island	0	0	0	1,389		0
South Carolina	0	0	0	5,240		0
South Dakota	0	0	0	913,081		528
Tennessee	5	10	829	91,402		2,101
Texas	0	0	0	*262,785	4,406,280	*1,295 90,433
Utah	0 z	0	0	*607	106,530	2
Vermont	0	0	0	3,242		0
Virginia	26	42	2,776	4,744	*2	6,884
Washington	0	0	0	9,073		0
West Virginia	3	3	190	158,761		588
Wisconsin	2	2	465	117,564		2,514
Wyoming	0	0	0	97,287		620
Puerto Rico	0	0	0	0		0
Virgin Islands	0	0	0	*905	1,895	0
TOTALS:	180	268	20,160	*311,737	15,530,561	*1,705 843,447

*Goats

a-In addition 239,288 sheep were inspected by Montana Deputy State Veterinarians at auction markets.


PSOROPTIC SHEEP SCABIES REPORTED
COUNTIES, FISCAL YEAR 1963
U. S. DEPARTMENT OF AGRICULTURE
NEG. 63 (8)-5077 AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE
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PSOROPTIC CATTLE SCABIES ERADICATION ACTIVITIES

INCREASED INSPECTION ACTIVITIES

During fiscal year 1963, increased efforts were made to locate any additional evidence of the disease and more than 5 millions of cattle were inspected than the previous year. The number of official dippings remained approximately the same.

PROGRAM ACTIVITIES - FISCAL YEARS 1954 THROUGH 1963

Fiscal Year	Number of Infected States	Number of Infected Counties	Number of Infected Herds	Total Inspections	Total Treatments	At Public Stockyards		
						Infected Lots	Cattle Inspected	Cattle Dipped
1954	6	15	28	1,090,260	32,844	0	25,810,912	13,019
1955	6	19	30	1,146,174	396,268	2	25,845,757	12,389
1956	5	5	7	1,763,243	52,003	1	25,187,037	672
1957	5	12	25	2,089,912	184,236	3	25,994,640	2,287
1958	3	4	4	2,139,102	117,768	0	23,817,304	609
1959	6	21	27	5,862,011	268,364	9	21,977,606	21,456
1960	4	4	4	6,927,266	374,990	0	21,700,786	53,627
1961	5	8	10	7,660,685	234,293	3	21,334,686	46,005
1962	3	4	4	8,160,029	123,549	1	20,438,908	42,197
1963	0	0	0	13,464,758	129,882	0	20,168,561	69,772

During fiscal year 1963, for the first time since 1952, psoroptic cattle scabies was not reported in the United States. The most recent series of outbreaks had their beginning in 1954 when 28 infected herds were found in 15 counties in 6 States. Strenuous efforts to develop the epidemiology of each outbreak and to find all infected and exposed animals were made during the intervening nine years. During this period, there was a gradual reduction in the number of outbreaks; however, psoroptic mites were found on cattle in many areas involving the States of Arizona, California, Colorado, Illinois, Indiana, Iowa, Kansas, Kentucky, Missouri, Nebraska, New Mexico, Ohio, Oklahoma, Texas, Washington, Wisconsin, and Wyoming. The earlier outbreaks were found largely in range cattle and as time went on, the disease was found more often in feedlots, particularly those receiving cattle from the range areas found previously to be involved. A number of the outbreaks were disclosed when infected cattle reached public stockyards. Other outbreaks were found through the efforts of veterinary practitioners and through "down-the-road" inspections of large numbers of cattle in the range areas concerned as well as through exhausative tracing of the movements of cattle both to and from herds in which outbreaks occurred. Areas where intensive inspections were made included particularly the general area involving Colorado, Kansas, New Mexico, Oklahoma, and Texas.

It is, of course, not possible to predict what may happen in the coming years insofar as outbreaks are concerned; however, efforts to determine if additional reservoirs of the disease may exist are continuing.

Available reports of psoroptic cattle scabies go back some sixty years in which the disease appeared quite regularly in the majority of the western States and eradication programs were begun. Cattle scabies was brought under control and the incidence of the disease decreased considerably; however, reinfections were not uncommon and during the period 1920-1929, active inspection and dipping programs were carried out in Arizona, Colorado, Kansas, Montana, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, Utah, and Wyoming where outbreaks were frequently found and in other areas where the disease was less prevalent. These efforts were eventually successful; however, it was not until 1950 that cattle scabies was not reported in the United States. No reports were received in 1951 or 1952 and thus the series of outbreaks which began in 1954 were the first for several years.

PSOROPTIC SHEEP SCABIES - States and Counties Involved

Colorado - Phillips

Delaware - New Castle

Illinois - Adams, Fulton, Iroquois, Jasper, Kane, Kendall, Knox, La Salle, Marion, Mason, Rock Island, Vermilion, Wabash, White, Whiteside

Indiana - Boone, Carroll, Cass, Daviess, Decatur, Delaware, Fountain, Grant, Henry, Jackson, Jay, Kosciusko, Lagrange, Martin, Montgomery, Randolph, Scott, Wayne, Wells, Whitley

Iowa - Allamakee, Buena Vista, Carroll, Cass, Cedar, Cherokee, Clarke, Clayton, Dallas, Davis, Decatur, Guthrie, Hamilton, Hancock, Harrison, Howard, Ida, Keokuk, Kossuth, Lyon, Marshall, Muscatine, Osceola, Palo Alto, Plymouth, Pocahontas, Sac, Sioux, Winnebago, Winneshiek

Kansas - Lincoln, Smith

Maryland - Kent, Queen Annes

Minnesota - Blue Earth, Brown, Faribault, Freeborn, Goodhue, Jackson, Lyon, Martin, Morrison, Nobles

Mississippi - Bolivar, Choctaw, Washington, Winston

Missouri - Adair, Audrain, Carroll, Clark, Howard, Linn, Macon, Monroe, Schuyler, Shelby, Warren

Nebraska - Butler, Clay, Frontier, Hall, Sioux, York

New Jersey - Somerset

New Mexico - Chaves

North Carolina - Martin, Tyrrell

Ohio - Adams, Champaign, Clark, Clinton, Fayette, Franklin, Fulton, Greene, Hancock, Hardin, Huron, Logan, Mercer, Montgomery, Pickaway, Ross, Sandusky, Seneca, Shelby, Washington, Wyandot

Oklahoma - Atoka, Coal, Kingfisher, Murray

Pennsylvania - Adams, Chester, Crawford, Cumberland, Dauphin, Greene, Juniata, Luzerne, Lycoming, Mercer, Montgomery, Northumberland, Perry

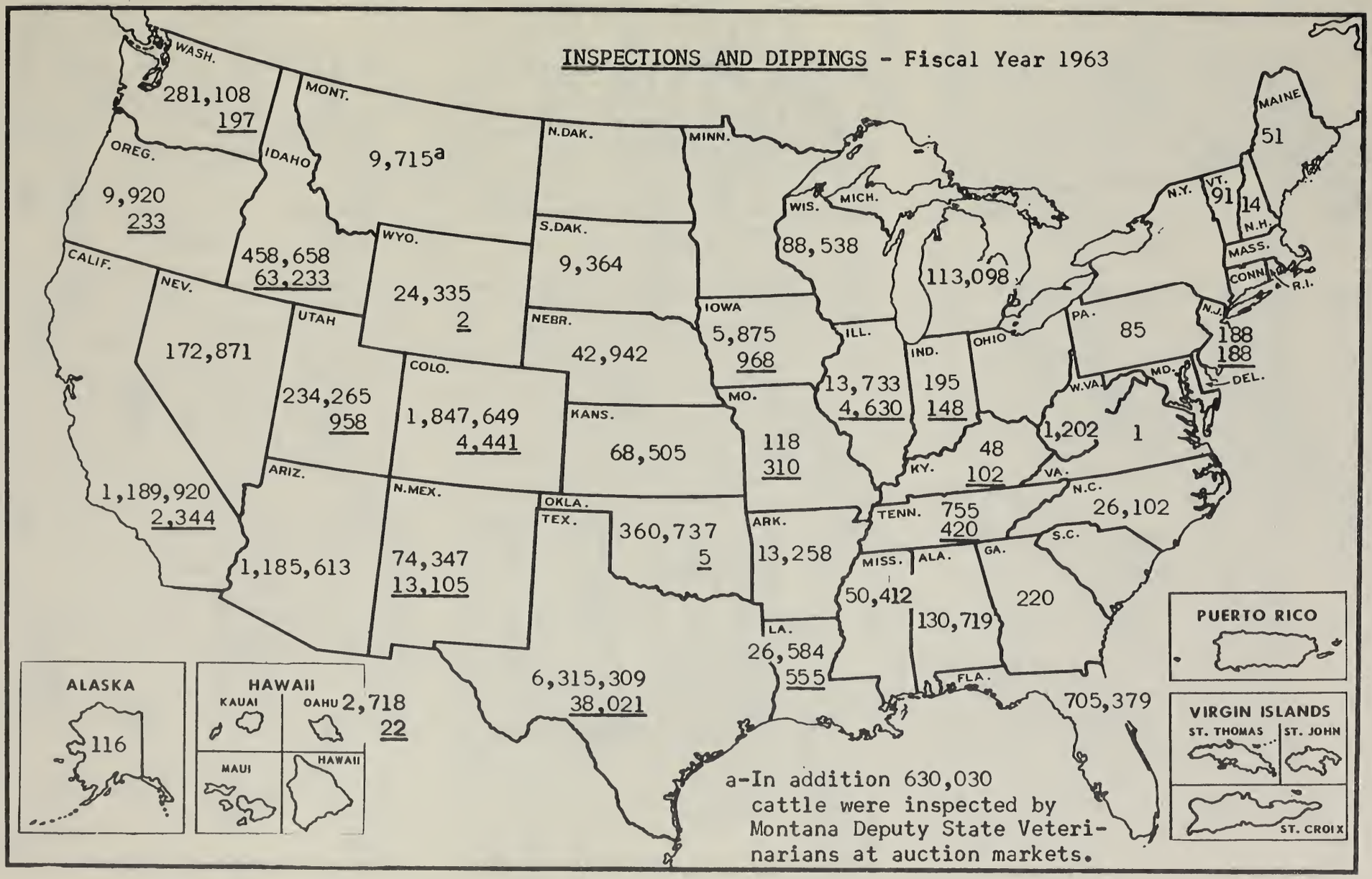
Tennessee - Bedford, Cannon, De Kalb, Williamson, Wilson

Virginia - Alleghany, Augusta, Botetourt, Brunswick, Chesterfield, Craig, Essex, Frederick, Giles, Gloucester, Hanover, Highland, Isle of Wight, Lancaster, Loudoun, Louisa, Mathews, Nansemond, Norfolk, Pulaski, Rockbridge, Rockingham, Russell, Shenandoah, Washington, Westmoreland

West Virginia - Jefferson, Monroe, Pendleton

Wisconsin - Jackson, Portage

PSOROPTIC CATTLE SCABIES



0 Animals Inspected

0 Animals Dipped

(No inspections and/or dippings reported in States left blank.)

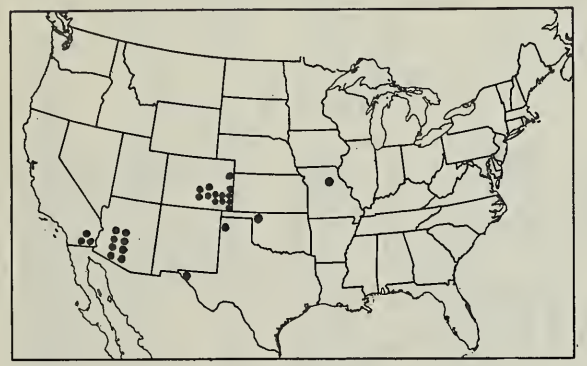
Total Inspections - 13,464,758

Total Dippings - 129,882

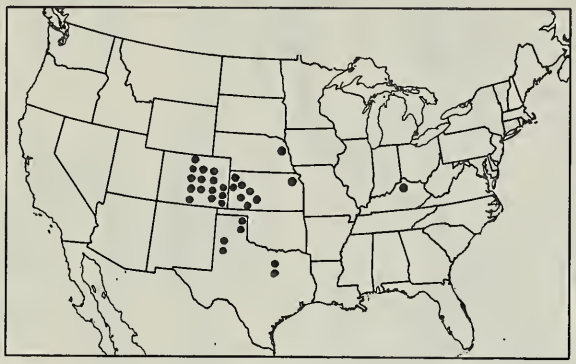
PSOROPTIC CATTLE SCABIES REPORTED

Fiscal Years 1954 to 1963

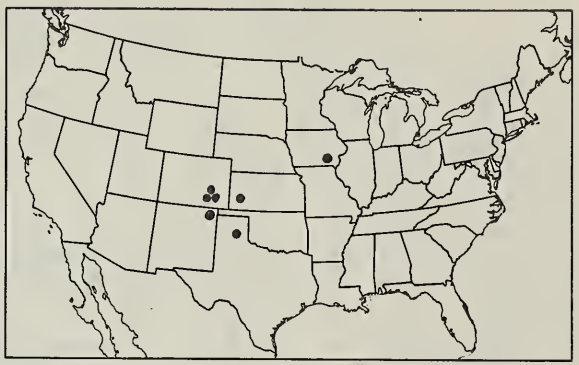
1954



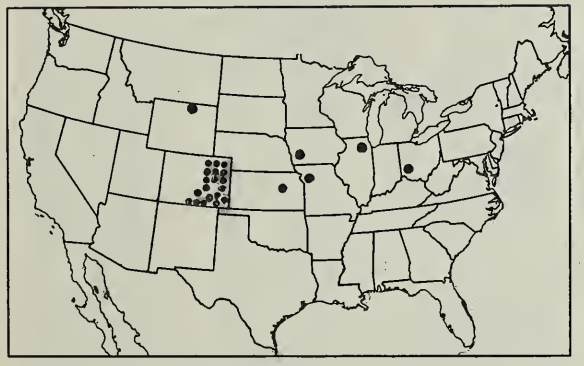
1955



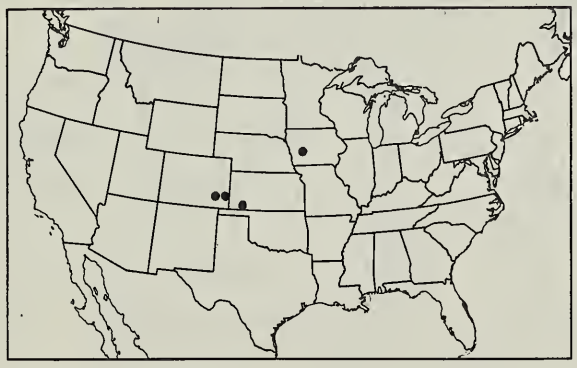
1956



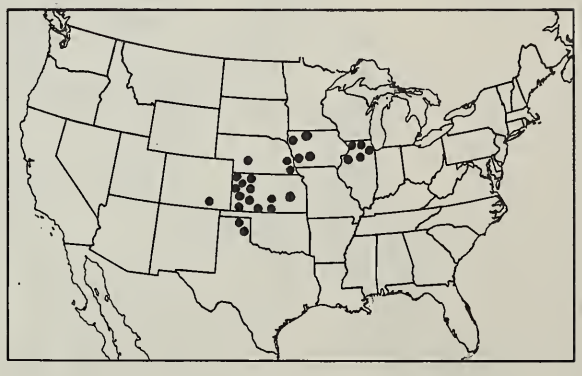
1957



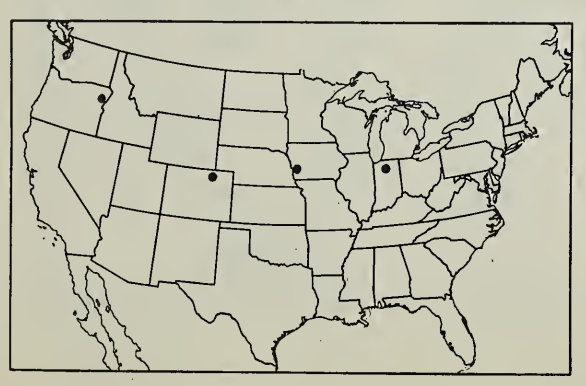
1958



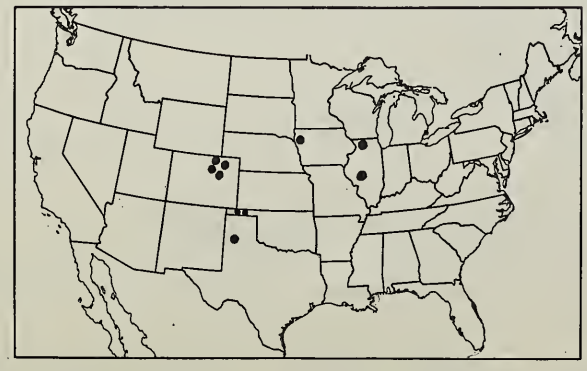
1959



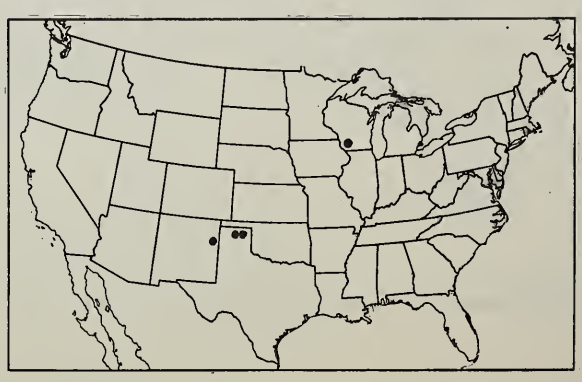
1960



1961



1962



Fiscal Year 1963 - No Outbreaks Reported

PSOROPTIC CATTLE SCABIES - FISCAL YEARS 1954 TO 1963

States and Counties Involved

Fiscal Year 1954
Arizona - Maricopa (8)
California - Imperial (2), Riverside (1)
Colorado - Baca (1), Bent (4), Crowley (1), Kit Carson (1), Otero (1), Prowers (3), Pueblo (2)
Missouri - Audrain (1)
Oklahoma - Harper (1)
Texas - El Paso (1), Hartley (1)

Fiscal Year 1955
Colorado - Costilla (1), Crowley (9), Larimer (1), Otero (1), Prowers (3)
Kansas - Doniphan (1), Finney (1), Ford (1), Hodgeman (1), Logan (1), Lane (1), Thomas (2)
Kentucky - Franklin (1)
Nebraska - Burt (1)
Texas - Lipscomb (2), Swisher (2), Tarrant (2)

Fiscal Year 1956
Colorado - Crowley (3)
Iowa - Mahaska (1)
Kansas - Finney (1)
New Mexico - Union (1)
Texas - Roberts and Gray (1)

Fiscal Year 1957
Colorado - Bent (2), Crowley (11), Las Animas (3), Otero (1), Prowers (1), Pueblo (1)
Illinois - Kane (1)
Iowa - Guthrie (1)
Kansas - Lyon (1)
Missouri - Clinton (1)
Ohio - Franklin (1)
Wyoming - Sheridan (1)

Fiscal Year 1958
Colorado - Bent (1), Prowers (1)
Iowa - Carroll (1)
Kansas - Seward (1)

Fiscal Year 1959
Colorado - Otero (1)
Illinois - DeKalb (2), DuPage (1), Knox (1), Ogle (1)
Iowa - Clay (1), Emmett (1), Pottawattamie (2)
Kansas - Chase (1), Clark (1), Ford (1), Gove (5), Kearney (1) Lane (1), Meade (1), Wichita (1)
Nebraska - Dawson (1), Otoe (1), Sarpy (1)
Texas - Hemphill (1), Ochiltree (1)

Fiscal Year 1960
Colorado - Weld (1)
Indiana - Marshall (1)
Iowa - Pottawattamie (1)
Oregon - Baker (1)

Fiscal Year 1961
Colorado - Adams (1), Morgan (1), Weld (2)
Illinois - Menard (1), Winnebago (1)
Iowa - Plymouth (1)
Oklahoma - Texas (2)
Texas - Swisher (1)

Fiscal Year 1962
New Mexico - Quay (1)
Texas - Hansford (1), Ochiltree (1)
Wisconsin - Iowa (1)

Fiscal Year 1963
No Outbreaks of Psoroptic Cattle Scabies Reported.

(0) Number of Outbreaks Reported in Each County

PSOROPTIC CATTLE SCABIES REPORTED

Fiscal Years 1954 to 1963 *